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ABSTRACT

To identify 5-year trends in revenues and expenditures for Pennsylvania's 500 school districts and to show how fiscal trends interact with changes in variables such as student enrollment, statewide school financial data from 1984-85 through 1988-89 are analyzed. The figures indicated that financial trends include increases in total district expenditures, expenditures per pupil, state and local revenues, and teachers' salaries. A decrease in the pupil/teacher ratio was also evident. Variances between the richer and poorer districts show that state funding and local revenues have increased more for the richer districts even though they have decreased their local tax efforts whereas the poorer districts have increased their local tax rates. Although changes in expenditures such as transportation costs were unrelated to changes in student enrollment, regular program expenditures, such as the number of teachers, were highly related. Seven figures and four tables are provided to help illustrate financial trends. (EJS)

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Fiscal Strain in Pennsylvania's School Districts

by

William W. Cooley

University of Pittsburgh

February 19, 1991

The purpose of this series of papers is to contribute to a more informed debate about critical policy issues facing Pennsylvania's public schools. This PEPS series draws upon a data base that has been established here at the University of Pittsburgh under the direction of William Cooley in cooperation with the Pennsylvania Department of Education.

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Fiscal Strain In Pennsylvania's School Districts

William W. Cooley

Executive Summary

It is easy to find extreme differences between the state's richest and poorest school districts:

$9,000 vs. $3,000 in total expenditures per pupil

$50,000 vs. $20,000 in average teacher salaries

11 vs. 25 students per teacher

But in addition to such inequities in current status, there are differences in five year trends that are important to understand. Comparing the average percent change in the 100 richest and the 100 poorest districts between 1985 and 1989:

State funding increased:	42% for the rich
	36% for the poor
Local revenues increased:	37% for the rich
	22% for the poor
Local tax effort decreased:	5% for the rich
Local tax effort increased:	6% for the poor

Thus the poorest districts were effectively increasing their local tax rates while the richest districts were decreasing theirs, but because their economies were expanding at a faster rate, the rich yielded a larger increase in local revenues. These and other five year trends are explored in this paper, together with how those changes interact with changes in enrollment.

Background

Most everyone today is concerned about the public schools. Some are concerned that schools are spending more and more while students seem to be learning less and less. Others worry that some schools have too much to spend while other schools do not have enough. Some think teachers are underpaid but others believe they are "being paid about what they are worth." The debates about the effectiveness, efficiency, and fairness of our commonwealth's schools will only increase now that 127 of the 500 operating school districts in Pennsylvania have filed suit in Commonwealth Court, claiming that the basis for supporting the public schools in this state is unconstitutional.

The purpose of this paper is to provide some additional background for the ensuing debates about school finance in Pennsylvania. In particular, the paper examines five year trends in revenues and expenditures for the 500 school districts, and shows how those trends differ for the rich and poor districts. The paper also shows how fiscal trends interact with changes in student enrollment. When district administrators are forced to react to change, that often results in a phenomena which some school finance experts call "fiscal strain". Status quo is often easier to deal with than are changes which force administrators to make tough decisions. This paper

examines some of those changes.

The five year period under consideration here is from school year 1984-85 through 1988-89, referred to as fiscal years 1985 to 1989. Fiscal 1985 was picked as the starting point because that was when enrollment began to increase again for many school districts, as will be shown in what follows. Also, fiscal '85 was when the state modified accounting procedures for expenditures, so that expenditure categories are comparable since 1985, but not for prior years. Fiscal 1989 is used as the end point since that is the latest year for which complete data are available from the state.

State-wide Five Year Trends

First let's examine the state as a whole, then look at what has been happening within different types of districts. Figure 1 illustrates the major changes that have occurred in the five years between 1985 and 1989. There we see that total district expenditures have increased 34%, while enrollment has decreased (-3%). With the number of students declining and the number of teachers increasing 3%, the average student/teacher ratio across the state has decreased from about 19 students per teacher to 18. This overall enrollment decline contributes to the fact that expenditures per pupil increased at a slightly faster rate than total expenditures (37% and 34%, respectively). On the revenue

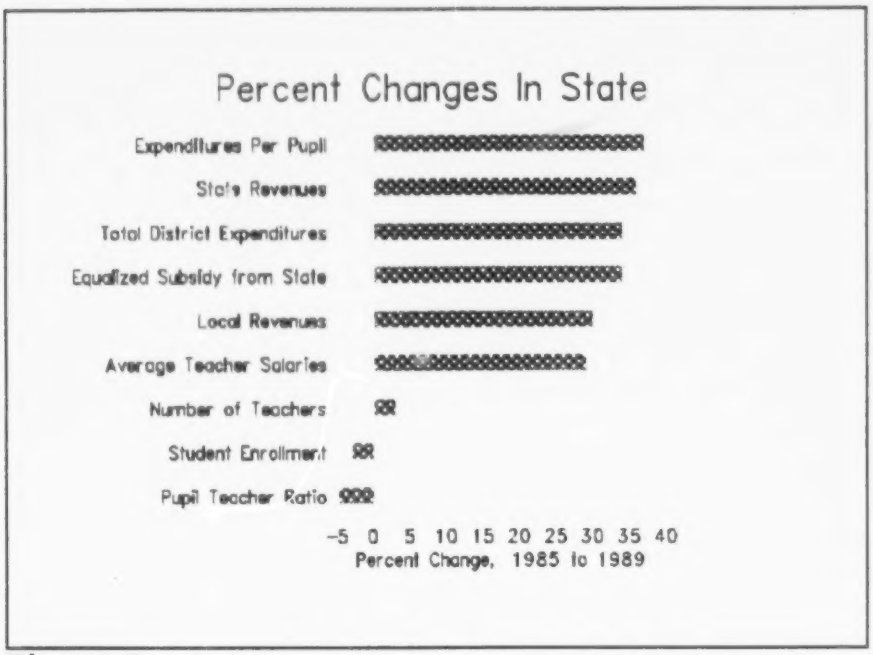

Figure 1

side, state revenues have increased 36%, while local revenues increased 30%. Average teacher salaries increased at a slower rate (29%) than did the other expenditure or revenue categories in Figure 1.

Figure 2 breaks down the total expenditures so you can see more clearly where the increases are occurring. Notice the smaller increases for non-educational components of the budget (operations and maintenance, and transportation). The largest percentage increases are for the three special program categories, which together account for less than 15% of the budget, while the regular program, which makes up 45% of the budget, increased at about the same rate as total expenditures.

Meanwhile, general inflation has been rather modest,

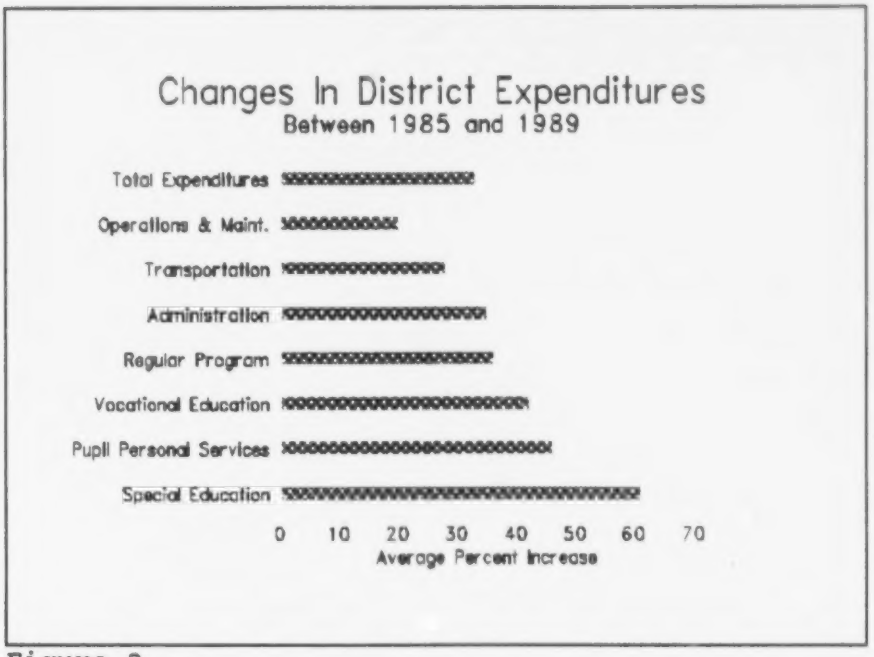

Figure 2

with the nation's Consumer Price Index (CPI) going up only 15% during those five years. That is why some people argue that the school districts should not be complaining, particularly about the Commonwealth, since state revenues have been going up at a faster rate than local revenues (36% vs. 30%), and both are at least double the inflation rate. But it is necessary to put that CPI comparison in perspective.

Figure 3 does that by plotting what has been happening to the CPI and to total instructional expenditures in Pennsylvania over the past 20 years. On the left vertical axis is the CPI, using the current standard reference which sets the 1983 CPI at 100. The right hand vertical axis is total instructional

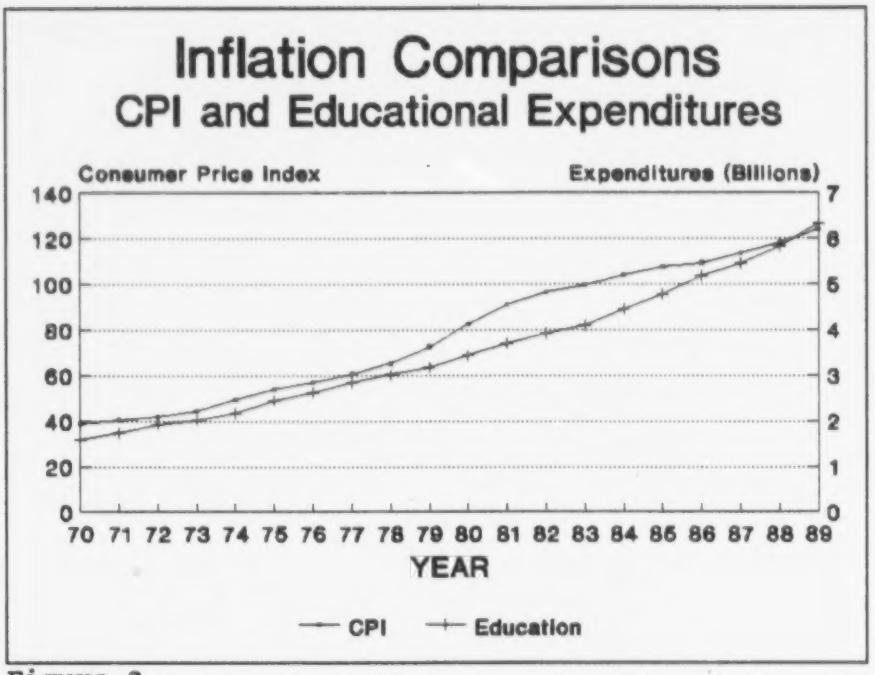

Figure 3

expenditures in billions of dollars. As can be seen in Figure 3, CPI (represented by the upper curve) and expenditures (the lower curve) ran parallel until 1978, when rapid inflation began. The gap increased until 1983, when the state's economic recovery began to make it possible for educational revenues, and thus expenditures, to increase at a faster rate than inflation. So as is typically the case for publicly supported institutions, there was a big lag in responding to the period of high inflation among the public school districts. The period 1985 to 1989, which this paper is examining, was the time during which this gap was being closed, thus educational expenditures were increasing at a faster rate than the CPI.

It must also be recognized that general trends hide much. Everyone has heard about the statistician who drowned in a lake that was only one foot deep, on the average! So let's look at the changes that have been occurring within and among the 500 districts during this five year period and see what that reveals.

Variation in Change Among the Districts

One important way in which change has varied is in student enrollment. Figure 4 shows this for the 500 districts. There you see that some districts experienced increases in enrollment while others had declines. The range was dramatic. In one district, enrollment declined

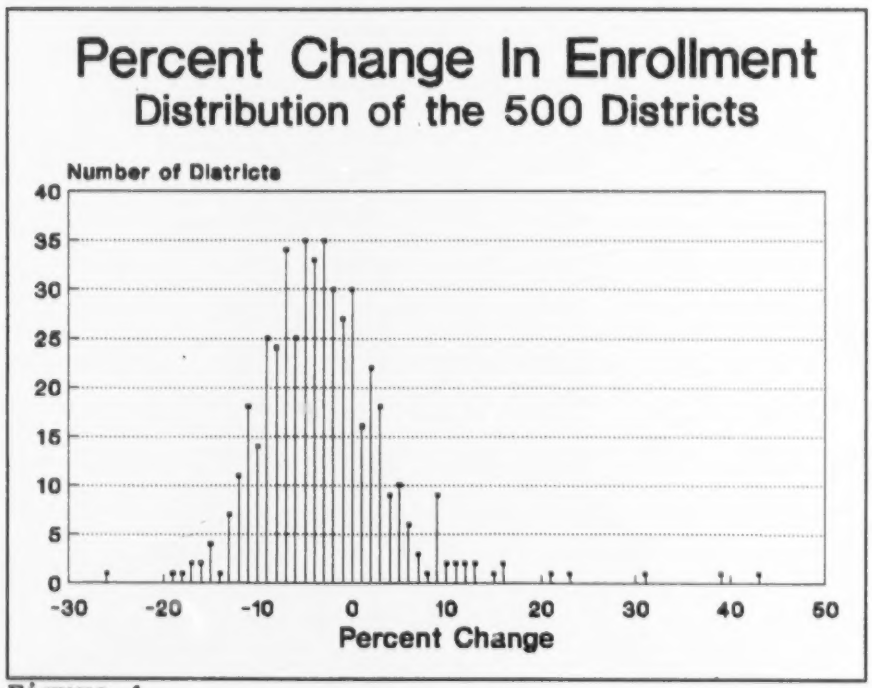

Figure 4

27%, while in another it increased 44%. The average was a decline of 3%, with about two-thirds of the districts falling between a 10% loss and a 4% gain. This variation in percent change in size of enrollment is important because of how enrollment change affects such things as costs per pupil, average teacher salary, and revenues, as will be explained shortly.

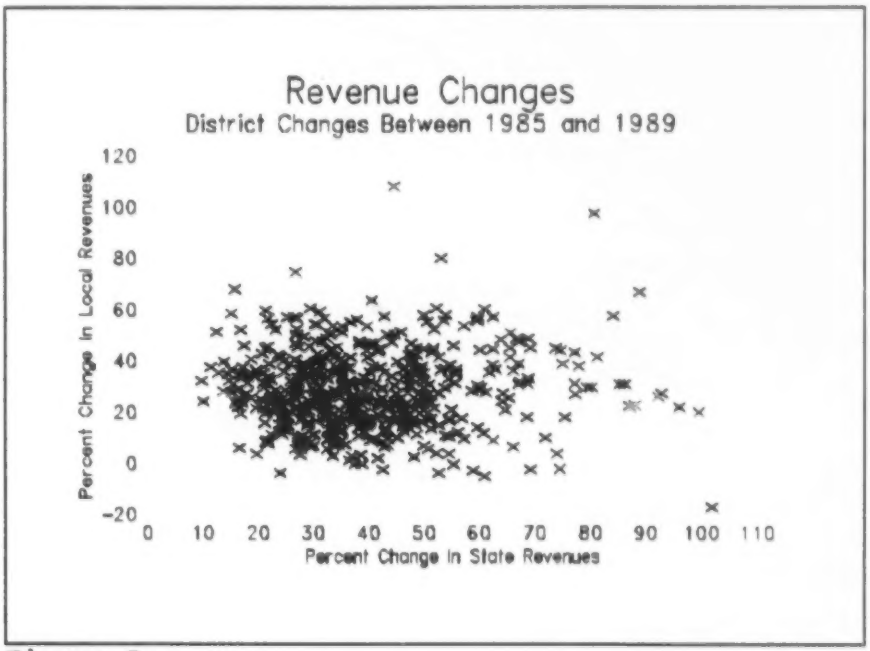

Figure 5

Changes in revenues also varied among the districts. Figure 5 plots each of the 500 districts in terms of their change in state revenues (horizontal axis) and local revenues (vertical axis). For example, one district (the x in the lower right hand corner) saw its state revenue double (100% increase), while its local revenue decreased 20% . Several other districts also had

a slight decrease in local revenues, while three districts increased local revenues over 80%.

Figure 5 also illustrates the fact that change in local revenue is completely uncorrelated with change in state revenue. Although the percent change in local revenue had this zero correlation with the percent change in state revenue, together they explain the variation in change in total expenditures. Thus, for example, if a district's total expenditures increased 40%, then the total of state and local revenues increased 40%, but there were all possible combinations of state and local revenue increases that accounted for a given expenditure increase.

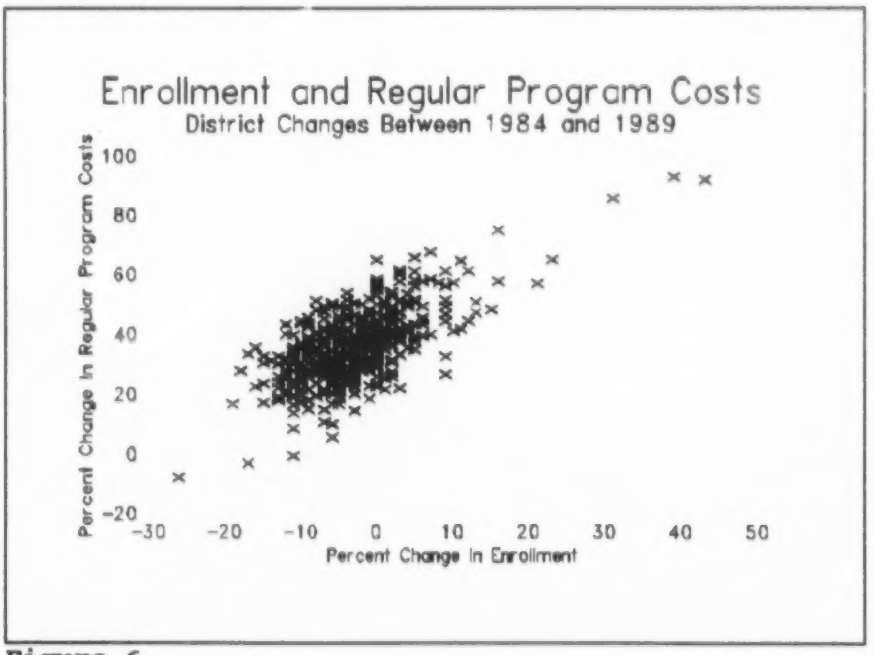

Figure 6

Now lets turn to how changes in enrollment relate to

changes in expenditures. Figure 6 shows how change in regular program costs are a function of changes in enrollment (correlation is .68). But even with that strong relationship, notice for example that for districts with about a 10% decline in enrollment (the x's that are directly above the -10% enrollment change in the graph), one district had no change at all in regular program costs, while another district had over a 40% increase. The district in the lower left hand corner of Figure 6 had the largest enrollment decline (-27%) and reduced its regular program costs by about 10%. In the upper right hand corner are two districts with enrollment increases of over 40% and with regular program costs increasing more than 90%. Let's take a closer look at how changes in enrollment, revenues and expenditures interrelate.

Figure 7 compares the strength of the relationship (correlations) between change in enrollment and change in various expenditure and revenue categories. Notice that the change in transportation costs is rather unrelated to change in enrollment, whereas change in regular program costs is the most highly related (that is the relationship illustrated in Figure 6). Also highly correlated with enrollment change was the percent change in the number of teachers. So it appears that districts can adjust regular program expenditures (by adjusting the

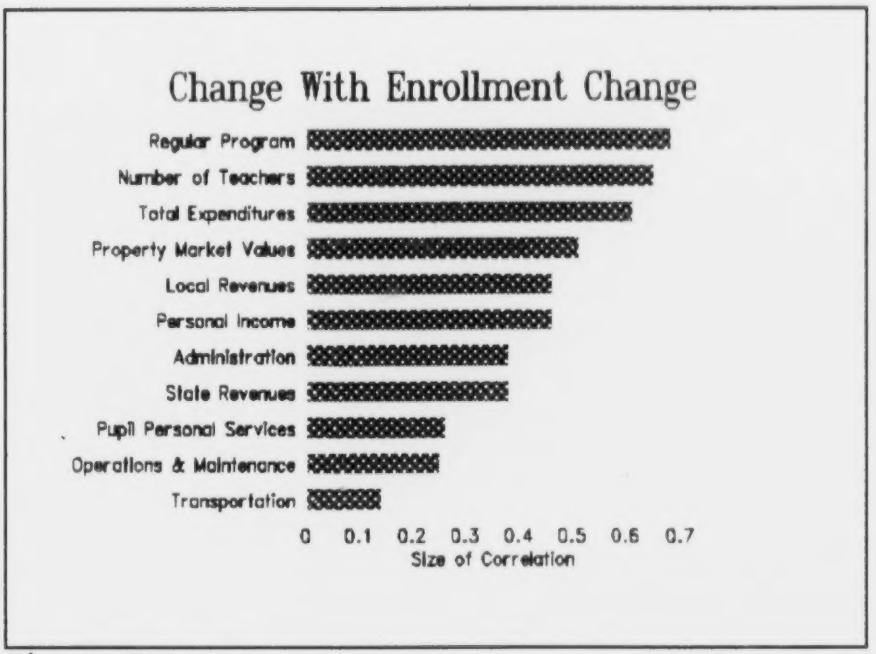

Figure 7

number of teachers) more than they can adjust other kinds of costs, such as transportation, operations and maintenance.

Notice also that change in local revenues is more highly related to enrollment change than is change in state revenues, even though the latter has enrollment built right into the state funding formula. This is due to the association between changing enrollment and changing local economic conditions (market values and personal incomes), which affect local revenue sources. Changes in vocational education and special education expenditures were completely unrelated to change in enrollment, so are not shown in Figure 7. Although changes in those two expenditure categories were related

to changes in the number of students in those two programs, that was unrelated to overall change in enrollment.

Comparing Enrollment Gainers and Losers

Another way to examine the effect of changes in enrollment is to compare the districts with the largest enrollment increases to those districts with the largest losses. Table 1 contrasts the average percent change in revenue related categories for the top fifth of the districts (gainers) and the bottom fifth (losers), with about 100 districts in each group. Table 1 also reports the difference in the percent changes for the gainers and losers.

Table 1

Enrollment Gainers and Losers

Average Percent Change: Revenue Related Categories

Category	Gainers	Losers	Diff
Enrollment	+6	-11	17
Property Values	47	22	25
Personal Income	39	17	22
Local Revenue	41	22	19
State Revenue	49	32	17
Local Tax Effort	0	3	3

So, for example, the top fifth of the districts in terms of the percent enrollment change had an average

increase in property values of 47%, while the bottom fifth averaged a 22% increase. Property value was also the category with the largest difference (25%) between percent change for gainers and losers. An important variable to consider when examining fiscal strain is changes in local tax effort. Local tax effort is a measure of how much local taxes a district raises relative to the wealth of the district. As Table 1 reports, the districts with enrollment increases were able to increase local revenues 41% with no change in local tax effort. Notice also that state revenues for the gainers increased at a faster rate than it did for the losers.

Table 2 compares those same two groups of districts (enrollment gainers and losers), but this time in terms of expenditure categories. Here you can see that the rate of change is greater for the gainers except when expenditures are compared on a per pupil basis. As one would expect, the per pupil change is greater for those districts experiencing enrollment declines.

The bottom three rows of Table 2 show what has been happening to these two groups of districts with respect to teachers. The enrollment gainers were able to add 10% more teachers, where the losers had a net reduction of 4% in their teaching force. As can be seen by comparing average service, this resulted in larger percent increase

Table 2 Enrollment Gainers and Losers Average Percent Change: Expenditure Categories			
Category	Gainers	Losers	Diff
Regular Program	47	27	20
Pupil Personal Services	59	35	24
Administration	44	25	19
Operations & Maintenance	27	16	11
Transportation	36	19	17
Total Instruction	41	24	17
Total Expenditures	45	25	20
Instruction Per Pupil	26	31	-5
Total Expenses Per Pupil	36	41	-5
Number of Teachers	10	-4	14
Avg. Teacher Salaries	28	30	-2
Avg. Teacher Service	4	14	-10

in teacher experience for the losers, resulting in higher average salaries. This is another example of fiscal strain for those districts that experience enrollment declines.

Comparing High and Low Aid Ratio Districts

Now let us turn to an examination of the differences in change between the richest (lowest aid ratio) and poorest (highest aid ratio) districts, because it is the latter that have taken the state to court. Table 3 compares the average changes in expenditures for the 100 districts with the lowest aid ratio (rich), and the 100

Table 3

Richest and Poorest Districts

Average Percent Change: Revenue Related Categories

Category	Rich	Poor	Diff
Enrollment	-1	-5	4
Property Values	50	19	31
Personal Income	40	15	25
Local Revenue	37	22	15
State Revenue	42	36	6
Local Tax Effort	-5	6	-11

with the highest aid ratios (poor). For example, for the rich districts, property values increased an average of 50%, while among the poor the increase was only 19%. That 31 point difference in the rate of change is the largest difference in all four tables. One striking difference in Table 3 is the fact that local tax effort actually decreased for the rich districts and increased for the poor districts. Thus the rich districts were able to raise local revenues at a faster rate (37%) than the poor districts (22%), with an actual reduction in tax effort. But also notice that state revenues increased at a faster rate for the rich than for the poor (42% vs. 36%). This was partially due to the fact that the poor districts lost slightly more students (-5%) than did the rich (-1%), and state revenues are closely tied to

enrollment.

Table 4 shows the expenditure side of the ledger, where here again the rich districts increased at a faster rate than the poor districts in all expenditure categories, but with some differences being rather

Table 4

Richest and Poorest Districts

Average Percent Change: Expenditure Categories

Category	Rich	Poor	Diff
Regular Program	41	33	8
Pupil Personal Services	45	32	13
Administration	41	33	8
Operations & Maint.	22	21	1
Transportation	34	19	15
Total Instruction	34	29	5
Total Expenditures	37	29	8
Instruction Per Pupil	29	27	2
Total Expenses/Pupil	39	37	2
Avg. Teacher Salaries	32	28	4
Avg. Teacher Service	8	10	-2

modest. The largest change was in pupil personal services in the rich districts, and the smallest being transportation among the poor districts. The largest difference in percent change between the rich and poor districts was for transportation.

On a per pupil basis, the differences in percent

change were not as large because of the larger decrease in enrollment for the poor districts, as indicated in Table 3. Average teacher salaries also did not show much of a difference in percent change because the rich districts were able to bring in some new teachers, as shown by the smaller increase in teacher service for the rich districts. That is, the average years service increased at a faster rate for the poor districts than it did in the rich districts, and average teacher salaries is closely keyed to average teacher service.

Conclusions

The purpose of this paper is to show some of the changes that have been occurring in school district budgets during the past five years, 1985 to 1989. Although overall revenues and expenditures have been increasing at a faster rate than inflation, this is misleading because of the slow rate of growth which the public schools realized during the prior years of high inflation, so now expenditures appear to be about even with inflation.

Overall rates of change also do not reveal the fact that some districts have continued to experience fiscal strain as a result of continuing enrollment decline, or because revenues and expenditures are changing differentially. The districts that seem to be having the greatest difficulty adjusting to change are those that

have the least flexibility in raising local taxes, and these tend to be the districts with the highest aid ratios, that is, the districts most dependent upon the state for funding.

Prior papers in this PEPS series described some of the inequities that exist among the school districts in Pennsylvania. This paper focuses upon change. Sometimes dealing with change is more difficult for school administrators that dealing with inequities. Both need to be understood if we are going to achieve effective reforms in public education in the Commonwealth.